

CHAPTER 7

Using a Quality Model to Implement P2

INTRODUCTION

This chapter presents an approach to preparing a P2 plan that is business-oriented, while still meeting any state or local P2 requirements. P2 has sometimes suffered from its reputation as something that the environmental personnel do or direct others to do. A more effective approach is integrating P2 into your organization's core business practices. This approach allows you to communicate the value of P2 to both senior management and workers. Your P2 plan also can be maintained and improved on an annual basis. This chapter presents a proven quality model that is based on the highly successful Baldrige Quality Program.

The Malcolm Baldrige National Quality Award is bestowed each year by the President of the United States on organizations that have demonstrated proficiency in the use of this quality model. The award was established by the U.S. Congress in 1987 to raise awareness about the importance of quality and performance excellence. When this award was established, the organizers believed that quality was no longer optional for American companies but was instead a necessity for doing business in an ever-expanding and more competitive world market. Nearly 50 countries now offer awards based on the Baldrige quality model, and 43 of the 50 states in the United States offer awards based on this model.

In 1998, the State of New Mexico began the Green Zia program, which adopted this quality model to measure environmental excellence. *Environmental excellence* is a term that describes the ultimate goal sought by using a quality program for environment, health, and safety (EHS) management. An environmental excellence program sets a "stretch goal" of attaining "best-in-class" status in those areas that best support a prevention-oriented approach to EHS management. No longer are short-term goals with percent reduction targets accepted by upper management and other interested parties. Results from these goal-driven activities are only "outcomes" of EHS performance and not a measure of the performance itself. Also, results by themselves offer little diagnostic value (i.e., were "good" results well below those of your competitors?). Green Zia shows an organization how to use a 15-item list of performance characteristics that can be modified to enable fast-paced EHS program improvement and thus contribute to the results. By focusing on performance, the organization can both help encourage P2 program development and provide a metric to show how effectively that P2 program is working.

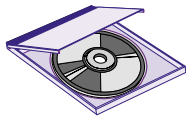
Includes:

- ☐ Introduction
- ☐ Seven Quality Model Criteria
- ☐ Eleven Quality Model Guiding Principles
- ☐ Five-Step Process to Improve Your P2 Plan
- ☐ Using the Quality Model to Implement P2
- ☐ Supplemental Reading
- ☐ Web Sites

The Malcolm Baldrige National Quality Award was established by the U.S. Congress in 1987 to raise awareness about the importance of quality and performance excellence.

In 1998, the State of New Mexico began the Green Zia program, which adopted this quality model to measure environmental excellence. Environmental excellence is a term that describes the ultimate goal sought by using a quality program for environment, health, and safety (EHS) management.

The Green Zia model has all the essential ingredients that make a zero waste vision possible.



Using this quality model, the stretch goal can be set at **zero**—zero defects, zero inventory, zero equipment breakdowns, and zero waste. Many organizations are now extending the zero concept to EHS programs—zero incidents, zero accidents, zero wastes, zero emissions, and zero drain on world resources (sustainability). P2 is a major driving force in the quest for zero waste and zero emissions.

The Green Zia model has all the essential ingredients that make a zero waste vision possible. First, it has criteria that define “best in class” so each organization can measure progress towards excellence. Second, it has a set of guiding principles (or core values) that must be present in order to integrate the criteria throughout the program. Third, it has a rigorous scoring system that is used by trained examiners to provide a score that represents the current state of the environmental excellence program on a 1000-point scale. Fourth, the examiners issue a feedback report detailing the strengths and weaknesses of an organization’s excellence program against the criteria and guiding principles. The scoring system and the feedback reports are important tools for organizations to use in their environmental excellence programs. Organizations seek excellence, in their own way, using this model by selecting the performance elements for improvement and determining how to leverage these efforts in the organization. The P2 plan is often used to drive the program.

This chapter will first look at the criteria contained in this quality model. Next, the quality model’s guiding principles will be discussed. Finally, a five-step process will be presented to show how this quality information can be integrated with the Systems Approach presented in the first four chapters of this *Guide*. You can find more readings on this topic in the reference section at the end of the chapter and on the CD-ROM that accompanies this *Guide*.

SEVEN QUALITY MODEL CRITERIA

When implementing a P2 program, it is important to keep your eye on what is important. Based on years of quality management experience, this boils down to seven criteria:

1. Leadership
2. Strategic planning
3. Interested-party involvement
4. Employee involvement
5. Process management
6. Information analysis
7. Results

These criteria form the basis for the Green Zia program and will be used in the quality model presented in this chapter. Within each of these criteria, you will need to address **how** you are working to integrate P2

into your organization. In the past, you have probably focused on **what** you were doing. This may still be important. The “how” approach will lead you to the level of P2 integration that you seek. The first six criteria show you how to drive performance that will then lead to results, something that is covered in the seventh criterion. Let’s take a look at the types of “how” questions that should be asked in each of these criteria.

Leadership. A strong top-down direction for P2 or an EMS will enhance the chances of success in the program and help integrate it into the organization as a whole. P2 will be seen as important if the top leaders support it. Two sets of issues must be dealt with in the leadership criterion:

- How do senior leaders **communicate** their commitment to continual P2 program improvement to the employees and other interested parties?
- How do senior leaders **demonstrate** that commitment?

The time you take to keep the leaders informed and involved (i.e., “walking the talk”) will help you provide answers to these important questions.

Strategic planning. Leadership most often uses some form of strategic planning to guide the organization’s course. Sometimes this involves a formal strategic planning program. In other cases, the strategic planning may be much less formal. There are four basic questions that you need to address in the strategic planning criterion to attain continual P2 program improvement:

- How do you **identify** long-term and related short-term goals and objectives?
- How do you **develop** these goals and objectives?
- How do you **implement** these goals and objectives?
- How do these goals and objectives relate to your organization’s overall business objective?

To be ideally situated, the P2 program must be important in the eyes of the senior leaders and be represented in the strategic planning process. There is a strong link between strategic planning and leadership.

Interested-party involvement. No organization operates in isolation. There are many other organizations that can have an impact on your P2 or EMS programs. Interested parties include a wide variety of different stakeholders in your P2 program such as customers, suppliers, contractors, regulatory agencies, non-government organizations (NGOs), environmental groups, community groups, and the public at

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large. The questions that need to be considered for this criterion include the following:

- How does your organization involve interested parties in the development and implementation of your P2 program?
- How is your organization involved in other organizations' P2 programs?

The employees represent a special stakeholder position that has its own criterion.

Employee involvement. This criterion looks at the bottom-up portion of the P2 program, which is every bit as important as the top-down portion covered in the leadership category. Employees are a very important part of the P2 program, so it is important not to rely exclusively on outside experts and technical assistance to find P2 alternatives. Who knows the inner workings of an organization better than the employees? Questions that need to be addressed are the following:

- How does your organization prepare and involve employees in the **development** and in the **implementation** of the P2 program approaches?
- How are the employees' value and well-being considered in the P2 program?

Both the other interested-party and employee involvement criteria deal with the involvement of people in your P2 program. Now, you should turn to the process. In the past, this may have been the sole focus of the P2 program.

Process management. This is the criterion that ISO 14001 or other EMSs can help an organization with its score. Process management concerns itself with how you manage all work processes in such a way that P2 behavior is facilitated. It is important to realize that the process management criterion includes both "things people do" and other organization work processes (e.g., manufacturing). The important questions to ask here are as follows:

- How does your organization identify the primary and supporting work processes that impact the P2 program?
- How does your organization analyze those work processes to understand their impacts and underlying causes?
- How does your organization manage all work processes to gain P2 program excellence?

This criterion is closely related to the information-analysis criterion.

Employees are a very important part of the P2 program.

Process management concerns itself with how you manage all work processes in such a way that P2 behavior is facilitated.

Information analysis. Information analysis is the fuel of the P2 program. Paying attention to this criterion is the only way that clear results can be determined. The following three questions should be asked:

- How does your organization select information to assess the effectiveness of the P2 program?
- How does your organization collect that information?
- How does your organization use that information to make decisions?

This last question implies an important link to the strategic planning and leadership criteria. An organization that performs well makes sure that valuable information finds its way into the strategic planning process and is not used solely in the environmental program.

Results. This is the criterion with the greatest number of points in the quality model. Results measure the outcomes of all the performance changes and move the P2 program beyond anecdotal information and success stories to something that will link to all the other criteria. Remember that performance (i.e., the first six criteria) drive results. The two important considerations that need to be addressed in this criterion are as follows:

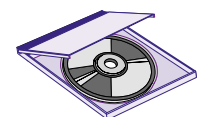
- What are your organization's planned vs. actual results related to your P2 program approach?
- What are the levels and trends as they relate to impacts on environment, other interested parties, and financial indicators?

The "how" is still involved in this criterion as you need to consider the following issues:

- How do you select the results you wish to track?
- How do you plan to measure them?
- How do you use the results to drive the other criteria?
- How do you trend your results for continual improvement?
- How do you trend the results of other similar organizations to benchmark your P2 program progress?

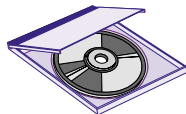
Using the Criteria

The Green Zia program makes it clear that all the criteria are linked and interrelated with the other criteria. Whenever you address one of the criteria, you need to ask how you need to leverage this by recognizing how it interacts with another criterion. The information that can be found on the CD-ROM will show many important connections between these criteria.



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By using the proper scoring methodology, you will be able to see the areas that require more effort as you seek to improve the P2 program.

You need to find a way to integrate each of the guiding principles with the proper criteria in the quality model if you wish to integrate the P2 program into the organization.

Another interesting fact about the Green Zia method is that there are a number of more detailed questions that can be asked within each criterion that describe what might be the best one can do (i.e., if you can answer every question in a positive manner within an example, your organization may be considered to be doing a great job in that area). A complete list of these questions can be found on the CD-ROM.

It is not important for your organization to be the best in all seven criteria areas. You will certainly do better in some than you do in others. The point is to make sure that the P2 program addresses all seven criteria in a forthright manner.

The Green Zia program assigns points to each of these criterion. These points emphasize the greater importance of results in a P2 program. By using the proper scoring methodology outlined on the CD-ROM, you will be able to see the areas that require more effort as you seek to improve the P2 program. Once you address these opportunities to improve the program using the Systems Approach tools, you can measure the amount of improvement in the overall program score. This concept will be described later in this chapter.

ELEVEN QUALITY MODEL GUIDING PRINCIPLES

Guiding principles, often referred to as *core values*, are used to set a context for all activities in an organization. They are meant to provide guidance for decision-making at all levels in the organization. You need to find a way to integrate each of the guiding principles with the proper criteria in the quality model if you wish to integrate the P2 program into the organization. Your organization may have already published a set of guiding principles. If so, consider how P2 can be addressed within each of these areas. If your organization does not have a set of guiding principles, consider how you can introduce the following principles into the culture. Keep in mind that it may take a long time (i.e., perhaps more than two years of concerted effort) to change the culture by addressing these guiding principles in the statement of the criteria. However, once this change takes place, the P2 program will be integrated within the organization. There are 11 guiding principles that can be considered in this quality model:

1. Interested-party–driven P2
2. Leadership
3. Continual improvement and learning
4. Valuing employees
5. Fast response
6. Efficient product, service, and process design
7. Long-range view of the future
8. Management by fact
9. Partnership development
10. Public responsibility and citizenship
11. Results focus

Let's take a look at what is meant by each of these guiding principles.

Interested-party-driven P2. P2 is judged by interested parties (i.e., customers, employees, suppliers, regulators, stockholders, the public, and the community). Thus, P2 must take into account all product and service features and characteristics that contribute value to these interested parties and lead to their satisfaction, preference, and continued interest in your organization.

Interested-party-driven P2 is thus a strategic concept. It is directed toward organizational customer retention, market share gain, growth, and maintenance of all relationships with time. It demands constant sensitivity to changing and emerging interested-party and market requirements and the factors that drive interested-party satisfaction and attention. Interested-party-driven P2 also demands awareness of developments in technology and of competitor's offerings and rapid and flexible response to interested-party and market requirements.

Interested-party-driven P2 means much more than waste discharge and emission reduction, merely meeting regulatory requirements and specifications, or reducing complaints. Nevertheless, waste reduction and elimination of causes of dissatisfaction contribute to the interested party's view of P2 and are thus also important parts of interested-party-driven P2. In addition, the organization's success in recovering from EHS problems and waste management issues ("making things right for the interested party") is crucial to building interested-party relationships and to customer retention.

Leadership. An organization's senior leaders are the right team to set directions and create an interested-party orientation, clear and visible P2 values, and high expectations. These directions, P2 values, and expectations should address all interested parties. The leaders can ensure the creation of strategies, systems, and methods for achieving environmental excellence, stimulating innovation, and building knowledge and capabilities. The strategies and P2 values will help guide all P2 activities and decisions of the organization. The senior leaders who are committed to the development of the entire workforce will encourage participation, learning, innovation, and creativity by all employees.

Through their behavior and personal roles in P2 planning, communications, review of P2 performance, and employee recognition, the senior leaders serve as role models, reinforcing P2 values and expectations and building leadership and initiative throughout the organization.

Continual improvement and learning. Achieving the highest levels of P2 performance requires a well-executed approach to continual improvement and learning. The term *continual improvement* refers to both incremental and "breakthrough" improvement. The term *learning* refers to adaptation to change, leading to new goals and/or P2 approaches. Improvement and learning need to be "embedded" in the

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The term learning refers to adaptation to change, leading to new goals and/or P2 approaches.

way the organization operates. The term *embedded* means that improvement and learning:

1. Are a regular part of daily work.
2. Are practiced at individual, work unit, and organizational levels.
3. Seek to eliminate waste at its source.
4. Are driven by opportunities to innovate and do better in the P2 program.

P2 improvement and learning include:

1. Enhancing value to interested parties through new and improved products and services.
2. Developing new business opportunities from P2 successes.
3. Reducing waste, emissions, and discharges and related costs.
4. Improving responsiveness to production and quality in waste (nonvalue added activity) reduction programs.
5. Increasing productivity and effectiveness in the use of all resources (e.g., energy, water, and materials).
6. Enhancing the organization's performance in fulfilling its public responsibilities and service as a good citizen.

Thus, improvement and learning are directed not only toward better products and services but also toward being more responsive, adaptive, and efficient—giving the organization additional marketplace and performance advantages.

An organization's P2 success depends increasingly on the knowledge, skills, innovative creativity, and motivation of its workforce.

Valuing employees. An organization's P2 success depends increasingly on the knowledge, skills, innovative creativity, and motivation of its workforce. Employee success depends increasingly on having opportunities to learn and to practice new skills. Organizations can take advantage of the workforce's potential by investing in its development through education, training, and opportunities for continuing growth. Opportunities might include enhanced P2 awareness and increased pay for demonstrated P2 awareness, knowledge, and skills. On-the-job training offers a cost-effective way to train and to better link P2 training to work processes. Education and training programs may need to utilize advanced technologies, such as computer-based learning and satellite broadcasts. Increasingly, training development needs to be tailored to a diverse workforce and to be more flexible for high performance P2 work practices.

Major challenges in the area of valuing employees include:

1. Integrating human resource practices: selection, performance, recognition, training, and career advancement.
2. Developing, cultivating, and sharing the P2 knowledge possessed by the organization's employees.
3. Aligning human resource management with strategic change processes.

Addressing these challenges requires use of employee-related data on process knowledge, skills, satisfaction, motivation, EHS knowledge, and well being. Such data can be tied to indicators of organizational or unit performance, such as interested-party satisfaction, customer retention, and productivity. Through this approach, employee contributions may be integrated and aligned with business P2 directions.

Fast response. Obtaining permits and regulatory compliance can add significant time to organizational decision-making. Success in globally competitive markets demands ever shorter cycles for introductions of new or improved products and services. Also, faster and more flexible response to interested parties is now a more important requirement. Major improvements in response time often require simplification of work units and processes together with timely incorporation of P2 into the design phase (i.e., design for the environment). To accomplish this, the P2 performance of work processes should be among the key process measures. Other important benefits can be derived from this focus on time: time improvements often drive simultaneous improvements in organizational behaviors, quality, P2, cost, and productivity. Hence, it is often beneficial to integrate response time, quality, P2, and productivity objectives.

Efficient product, service, and process design. Organizations need to emphasize P2 in the design phase—problem and waste prevention achieved through building P2 into products and services and building efficiency into production and delivery processes. P2 design includes the creation of fault-tolerant (robust) or waste-free processes and products. Costs of preventing problems at the design stage are lower than costs of correcting problems that occur “downstream.” Accordingly, organizations can emphasize P2 opportunities for P2 innovation and interventions “upstream”—at early stages in processes. This approach should also take into account the organization's supply chain.

The design stage is critical from the point of view of public responsibility. In manufacturing, design decisions impact the production and content of municipal and industrial wastes as well as other environmental impacts. Effective design strategies should anticipate growing environmental demands and related issues and factors.

Long-range view of the future. Pursuit of market leadership requires a strong future orientation and a willingness to make long-term com-

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Major components of such a long-term P2 commitment include developing employees and suppliers as key P2 participants in the long run and fulfilling public responsibilities over this period of time.

P2 measurements are driven by the organization's strategy and provide critical data and information about key processes, outputs, and P2 results.

Organizations can better accomplish their overall goals by building internal and external P2 partnerships.

mitments to all other interested parties. Organizations anticipate many factors in their strategic planning efforts, such as interested party expectations, new business opportunities, the increasingly global marketplace, technological developments, new customers and market segments, evolving regulatory requirements, community/societal expectations, and strategic changes by competitors. Short- and long-term P2 plans, P2 strategic objectives, and P2 resource allocations can reflect these influences. Major components of such a long-term P2 commitment include developing employees and suppliers as key P2 participants in the long run and fulfilling public responsibilities over this period of time.

Management by fact. Organizations depend on the measurement and analysis of P2 performance. Such P2 measurements are driven by the organization's strategy and provide critical data and information about key processes, outputs, and P2 results. Many types of data and information are needed for P2 performance measurement and improvement. Performance areas should include (1) interested-party and employee satisfaction, (2) product and service offerings, (3) operations, (4) market and competitive comparisons, and (5) P2 financial benefits.

Analysis refers to extracting larger meaning from P2 data and information to support evaluation, decision-making, and operational improvement within the organization. Analysis entails using data to determine P2 trends, projections, and cause and effect—knowledge that might not be evident without analysis. Data and analysis support a variety of purposes, such as P2 planning, reviewing overall P2 performance, improving operations, and comparing P2 performance with competitors or with “best practices” benchmarks.

P2 partnership development. Organizations can better accomplish their overall goals by building internal and external P2 partnerships.

Internal P2 partnerships might include labor-management cooperation, such as agreements with unions. P2 agreements might entail employee development, cross-training, or new work organizations, such as worker teams. Internal P2 partnerships also might involve creating network relationships among work units to improve flexibility, responsiveness, and P2 knowledge sharing.

External P2 partnerships might be with customers, suppliers, NGOs, environmental regulatory agencies, and educational organizations for a variety of purposes, including P2 education and training. An increasingly important kind of external P2 partnership is the strategic partnership of alliance. Such P2 partnerships might offer entry into new markets or a basis for new products or services. P2 partnerships also might permit the blending of an organization's core competencies or leadership capabilities with the complementary strengths and capabilities of P2 partners, thereby enhancing overall P2 capability, including the elimination of waste from all business processes.

Internal and external P2 partners should develop longer-term waste elimination objectives, thereby creating a basis for mutual investments. P2 partners should address the key requirements for success, means of regular communication, approaches to evaluating P2 progress, and means for adapting to changing conditions.

Public responsibility and citizenship. An organization can benefit by communicating its responsibilities to the public and practicing good citizenship. These responsibilities refer to basic expectations of the organization—business ethics and protection of public health, safety, and the environment. These responsibilities apply to the organization’s operations as well as the life cycles of its products and services. Organizations also can emphasize resource conservation and waste reduction at the source. P2 planning should anticipate adverse impacts from production, distribution, and transportation. The plan must provide response if problems occur and make information available and provide the support needed to maintain public awareness, safety, and confidence.

Practicing good citizenship refers to the following items: (1) improving education, (2) promoting health care in the community, (3) enhancing the local environment, (4) promoting resource conservation and recycling, (5) participating in community service, and (6) sharing nonproprietary P2 program information. Leadership as a corporate citizen also entails influencing other organizations, private and public, to partner for these same purposes. For example, individual organizations could lead efforts to help define the obligations of their industry to its communities.

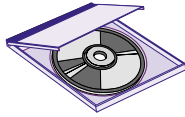
Results focus. An organization’s P2 performance measurements will benefit from a focus on key P2 results. Results should be focused on creating and balancing value for all interested parties—customers, employees, stockholders, suppliers, NGOs, P2 partners, and the community. To meet the sometimes conflicting and changing aims that balance implies, organizational strategy needs to implicitly include all interested-party requirements. This balance will help to ensure that P2 actions and P2 plans meet interested-party needs and avoid adverse impact on any stakeholders. The use of a balanced composite of performance measures offers an effective means to communicate short- and long-term P2 priorities, to monitor actual P2 performance, and to marshal support for improving results. It is important to remember that the first six criteria drive performance while the results criterion captures the measurement of this performance. Results in and of themselves are not performance.

In addition to meeting all local, state, and federal laws and regulatory requirements, organizations should treat these and related requirements as opportunities for continual improvement “beyond mere compliance” or by attaining compliance through P2.

An organization’s P2 performance measurements will benefit from a focus on key P2 results.

Using the Guiding Principles

The criteria describe how best-in-class organizations handle each of the seven areas covered. The guiding principles show how to integrate P2 into any organization. You can learn more about how to com-



bine these quality model items by reading the Green Zia and Baldrige information on the CD-ROM. Let us now see how these items can be incorporated into a P2 Plan.

FIVE-STEP PROCESS TO IMPROVE YOUR P2 PLAN

Let's examine a simple five-step process that utilizes the quality model and the Systems Approach tools presented in the first four chapters of this guide. This process should help you integrate your P2 plan into your organization's core practices. These steps are as follows:

FIVE-STEP PROCESS

1. *Plan and develop your P2 program.*
2. *Develop your organization's P2 opportunities.*
3. *Implement your revised P2 plan.*
4. *Maintain your P2 program.*
5. *Measure your progress toward zero waste and zero emissions.*

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This five-step process is presented as a top-level process map in Figure 7-1. Each of these steps will be described in the following sections. You can follow along with the various process maps that were prepared to illustrate the points made in the text.

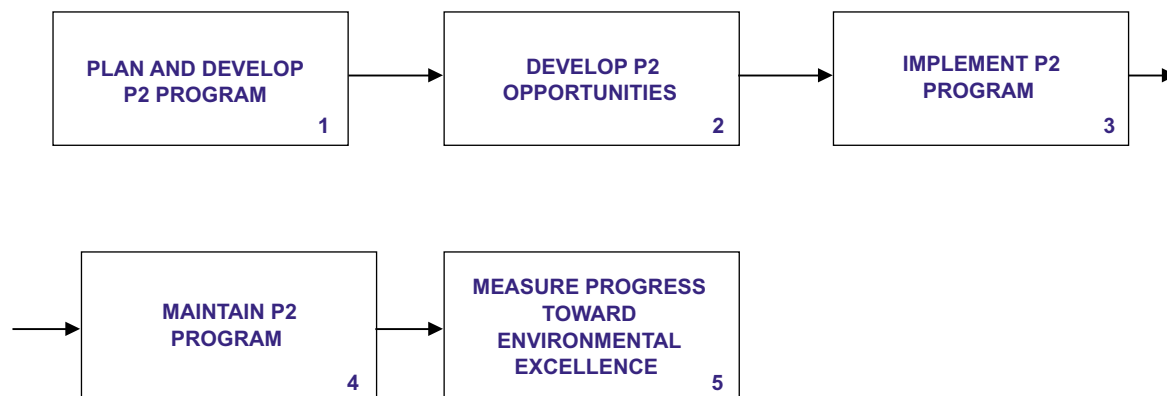


Figure 7-1. Top-level Depiction of Quality Model Approach to Pollution Prevention Implementation.

Step 1. Plan and Develop Your P2 Program

The first step in preparing a P2 program (Figure 7-2, work step 1.1) is to determine the elements of the quality model that will be addressed in the P2 planning effort. Four of the seven criteria covered in this chapter are addressed in this step: strategic planning, interested-

party focus, leadership, and employee involvement. You should determine the gap that may exist between the more detailed questions that get asked in the Green Zia program for each of these criteria and what is currently going on in your organization. The Green Zia criteria questions can be found on the CD-ROM that comes with this publication. Your gap analysis should also consider how to integrate the P2 program into your core business practice using some combination of the 11 guiding principles. This step is very similar to the first step in the traditional P2 approach discussed in Chapter 5.

The consideration of the quality model criteria should not only help you make your plan more businesslike, but it should also help you better meet the requirements of any P2 planning laws.

The leadership criterion helps you prepare the management P2 policy. This leadership examination will look at how senior leaders actually communicate and demonstrate their commitment to continual environmental improvement and P2 to employees and to other interested parties.

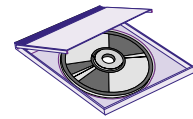
The employee involvement criterion helps you prepare the employee involvement, awareness, and training requirements. This effort looks at how the organization prepares and involves employees in the development and implementation of the P2 approaches. It also asks how the employees' value and well being are considered in these programs.

The strategic planning criterion addresses how the organization will identify, develop, and implement long-term and short-term goals and objectives for continual environmental improvement and P2 and how these goals and objectives relate to the overall business objective.

Finally, the interested-party focus criterion determines how your organization involves all interested parties in the development and implementation of your continual environmental improvement and P2 efforts.

In the next step (Figure 7-2, work step 1.2), the relevant processes that occur within the organization are characterized using the process-mapping tool in the Systems Approach. These maps will be used as templates for gathering information on the process. This activity helps you identify the production units that require further analysis.

During this work step, consideration of two other criteria is important: process management and information analysis. Process management addresses how the organization will identify, analyze, and manage all the processes that have the ability to impact the environment or cause injury to workers. Information analysis determines how the organization selects, collects, and uses information to assess the effectiveness of the program and make decisions on the basis of this information.



The leadership criterion helps you prepare the management P2 policy.

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The strategic planning criterion addresses how the organization will identify, develop, and implement long-term and short-term goals and objectives for continual environmental improvement and P2.

The interested-party focus criterion determines how your organization involves all interested parties in the development and implementation of your continual environmental improvement and P2 efforts.

Process management addresses how the organization will identify, analyze, and manage all the processes that have the ability to impact the environment or cause injury to workers.

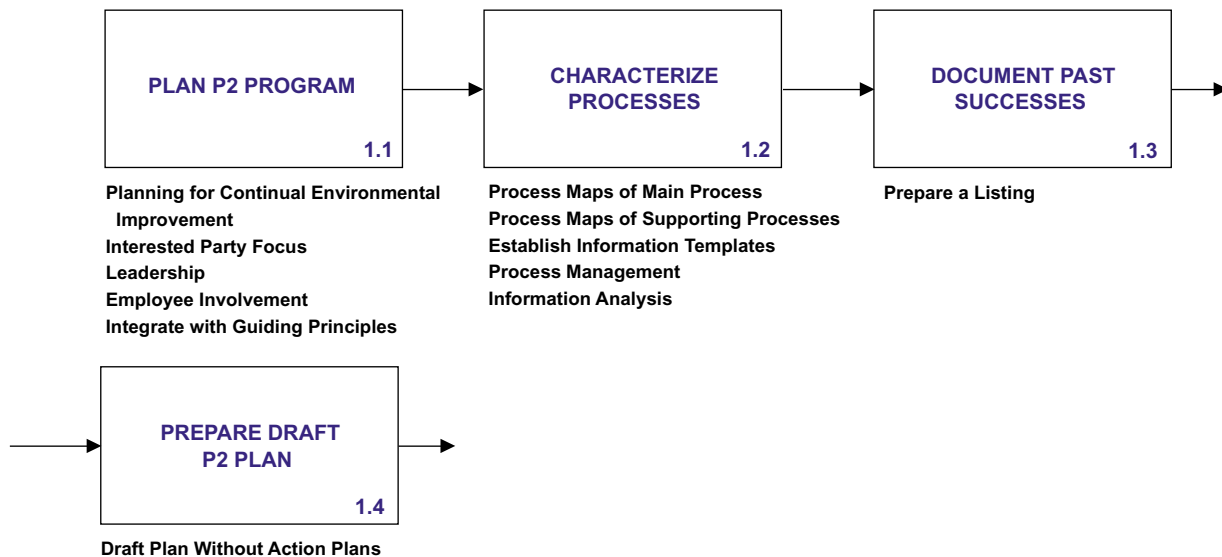


Figure 7-2. Planning and Developing a Pollution Prevention Program.

Information analysis determines how the organization selects, collects, and uses information to assess the effectiveness of the program and make decisions on the basis of this information.

Finally, after all this effort, it is time to prepare a formal P2 plan in draft form for review both internally and by the interested parties. Once the P2 action plans are prepared, the P2 plan can be finalized and distributed.

You will note that six of the seven criteria and the eleven guiding principles of the quality model are incorporated into the P2 program in the first two steps. This integration should help strengthen the P2 program and integrate it into the organization's key business operations.

The third step (Figure 7-2, work step 1.3) addresses the desirability of documenting previous P2 activities. Even at the start of a P2 program, it is important to document what has been done before. The third work step examines all P2 activities that can be documented with a time frame of two to five years. Employees and management alike will be justifiably proud of these accomplishments and can build on them in this newly constituted P2 program.

Finally, after all this effort, it is time to prepare a formal P2 plan in draft form for review both internally and by the interested parties. Once the P2 action plans are prepared, the P2 plan can be finalized and distributed.

Step 2. Develop Your Organization's P2 Opportunities

The hierarchical process maps prepared in the previous step are now used to gather information on the production units. You are now ready to develop the P2 opportunities (Figure 7-3).

In the information and analysis step (Figure 7-3, work step 2.1), every use of a toxic material represents an opportunity to eliminate that use. Every loss of a toxic material or the generation of hazardous waste

represents an opportunity not to have that loss or waste. The facility will have many P2 opportunities visually depicted by the process maps. You must rank order these P2 opportunities to provide some focus to your P2 plan. Pareto analysis (also referred to as the 80/20 Rule) is used in the Systems Approach to separate the vital P2 opportunities from the “trivial many.” You may want to consider selecting between 8 and 11 opportunities for the first planning year of the program. These opportunities should be selected with a goal of completing them within that year. The P2 program needs to have some “quick wins” to help maintain the interest of management and the other interested parties. You may want to select a couple of opportunities that will take a bit longer to complete and consider them with respect to the two-year window in the planning requirements. All the opportunities that will ultimately be included in the program can also be listed at this point. Next, you will collect more information on these opportunities.

The second step (Figure 7-3, work step 2.2) begins the process of production unit analysis. For each opportunity, an employee team will work with a facilitator provided by the organization to determine the root cause for the use or loss of all resources (i.e., materials, water, and energy). They will use a cause and effect diagram to look at how materials, methods, machines (technology), and people contribute to the P2 opportunity that has been identified. This team will conduct the root cause analysis and then prepare a memorandum version of a definitive statement of the problem. The time spent by the team determining the root cause is rewarded by the generation of a higher number of

The facility will have many P2 opportunities visually depicted by the process maps. You must rank order these P2 opportunities to provide some focus to your P2 plan.

For each opportunity, an employee team will determine the root cause for the use or loss of toxic materials or hazardous waste.

The time spent by the team determining the root cause is rewarded by the generation of a higher number of alternatives.

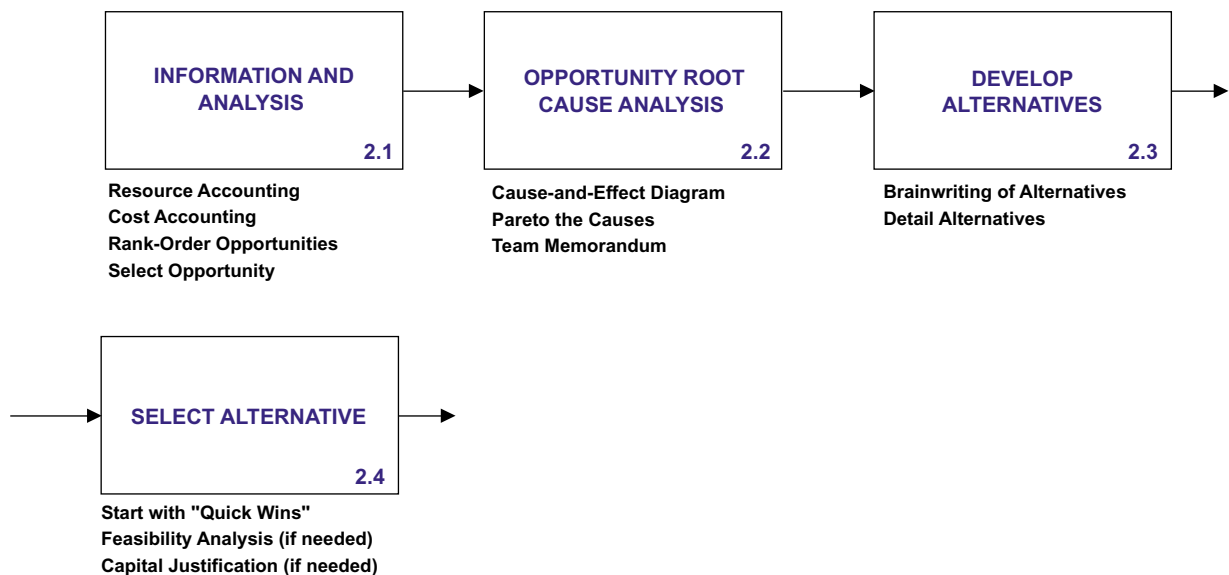


Figure 7-3. Development of Pollution Prevention Opportunities.

alternatives in the next step. Now, they are in a position to generate alternatives for realizing this opportunity by using a brainwriting tool (Figure 7-3, work step 2.3). Finally, they will select an alternative for implementation using a bubble-up/bubble-down tool (Figure 7-3, work step 2.4). These interactive problem-solving and decision-making tools will help the team gather the information needed for successful implementation and communication with management and other interested parties.

Step 3. Implement Your Revised P2 Program

The P2 program is implemented by preparing draft action plans for all the alternatives.

The P2 program is implemented (Figure 7-4) by preparing draft action plans for all the alternatives studied in the previous step. These action plans are the core of the P2 program each year and should be carefully reviewed before implementation. At this point, it is worthwhile to reconsider the relevant items in the quality model that were evaluated in the first step of the program (Figure 7-1). Recall that these criteria, as well as the guiding principles, are carefully designed to help integrate programs into core business practices. Constant effort to develop and improve on these items will keep the P2 program moving towards zero waste and emissions as a stretch goal. These criteria and guiding principles can be reinforced in the action plans and in the revisions to the P2 plan itself.

Typically, it is good to aim for 8 to 11 plans each year.

A key point, given the work done in the previous step, is employee involvement, awareness, and training. It has often been said “employees never resist their own ideas.” They can become important partners in P2 when the Systems Approach is used in the program. Once all this is done, final action plans are created for implementing each P2 alternative. Typically, it is good to aim for 8 to 11 plans each year. This goal should not inhibit people from doing other P2 activities. The focus will be on the main action plans in the program. The P2 plan will provide for implementation that is subject to a P2 program oversight committee. This group should be comprised of managers and should include the organization’s senior manager. The action plans should be reviewed at

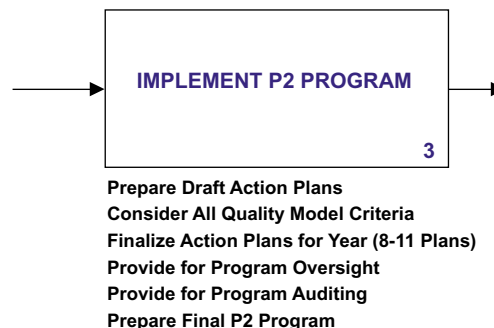


Figure 7-4. Implement the Pollution Prevention Program.

least on a quarterly basis. At the end of the year, they can be audited both internally and externally (i.e., by interested parties). The final P2 plan should now have internal plan approval and is ready for implementation.

Step 4. Maintain Your P2 Program

Once the P2 plan is implemented, it must be maintained over time (Figure 7-5). It is important to review the quality model criteria for information analysis and results. The results criterion examines your organization's real and anticipated P2 results related to your continual environmental approach to zero waste and emissions. It suggests that you consider levels and trends as they relate to impacts on the environment, worker health and safety, other interested party impacts, and key financial indicators. Managers love results and continue programs that deliver good results. Remember that "what gets measured, gets managed." P2 programs cannot survive on success stories. The information analysis criterion ensures that these results are used in running the organization and not simply sent off to the interested parties. The P2 plan must be improved with feedback received on the actual progress that is made. Each year, the sequence of preparing action plans using the Systems Approach is repeated.

Managers love results and continue programs that deliver good results. Remember that "what gets measured, gets managed." P2 programs cannot survive on success stories.

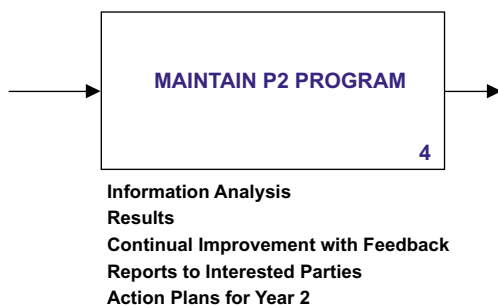


Figure 7-5. Maintain the Pollution Prevention Program.

Step 5. Measure Your Progress Toward Zero Waste and Emissions

After a few years, the P2 program can be scored in light of what it has contributed to the organization's stretch goal of zero waste and emissions (Figure 7-6). This scoring can be accomplished in a manner like the Green Zia program. It provides the ultimate scorecard for how important the P2 plan has been for the organization. Trending information helps the organization point to its accomplishments. The organization can also trend itself in comparison to other similar organizations using benchmarking techniques. This information can be used

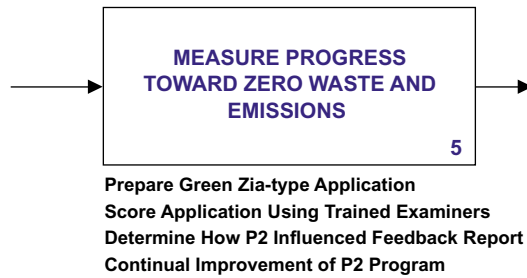


Figure 7-6. Measure Progress Toward Zero Waste and Emissions.

Not only can an organization score itself, but it can also score all of its suppliers. These scores can be compared on an “apples-to-apples” basis. In this manner, the entire life cycle of a product to a customer can be scored for environmental excellence, P2, and product stewardship.

Your ISO 14001, Global Reporting Initiative, CERES Principles, Responsible Care Program®, balanced scorecard, six sigma, ISO 9000, and other environmental and quality initiatives will help you score points in each of the criteria. They all help contribute to environmental excellence.

to continuously improve the P2 plan and other initiatives aimed at attaining zero waste and emissions.

Not only can an organization score itself, but it can also score all of its suppliers. These scores can be compared on an “apples-to-apples” basis. In this manner, the entire life cycle of a product to a customer can be scored for environmental excellence, P2, and product stewardship. Improvements can be weighed against the effect they had on the trending of these scores in time. While scoring may not be for everyone, it can be a useful tool for measuring continual improvement.

USING THE QUALITY MODEL TO IMPLEMENT P2

The use of the Systems Approach and the quality model provides a means of creating a sustainable P2 plan for your organization. Is it worth the effort? If your organization already has a quality program in place, the effort is not great at all. It is likely that there is already a program in place that you can build on. The quality model criteria and guiding principles simply emphasize good business practice and should be easy to implement at any rate. Your ISO 14001, Global Reporting Initiative, CERES Principles, Responsible Care Program®, balanced scorecard, six sigma, ISO 9000, and other environmental and quality initiatives will help you score points in each of the criteria. They all help contribute to environmental excellence. This program simply provides a means of integrating these approaches with environmental performance in your organization.

The P2 plan should be integrated with the core business practices. “Oh, that is something that the environmental coordinator is doing!”—such an attitude can only limit results. By making the P2 plan more businesslike, the possibilities for P2 within the organization and across the country are significantly enhanced.

SUPPLEMENTAL READING

“How do you measure environmental performance?” Pojasek, R.B.
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“New Mexico’s Green Zia Environmental Excellence Program: Using
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Gallagher, P., Kowalski, J., Pojasek, R. B., and Weinrach, J.
Pollution Prevention Review, 9(1): 1–14.

*Green Zia Environmental Excellence Program: 2001 Program
Information and Application Guidance*, New Mexico
Department of Environment, Santa Fe, NM, 2001.

WEB SITES

Systems Approach Tools:
<http://www.Pojasek-Associates.com>

Information on the Baldrige Quality Award Program:
<http://www.quality.nist.gov>

New Mexico Green Zia Program Information:
<http://www.nmenv.state.nm.us/> (See Special Projects)

